

## **REMARKS**

By this amendment, claims 4,5,7,9 and 10 have been canceled. The specification and claims 1-3, 6 and 8 have been amended. New claims 11-13 have been added. Claims 1-3, 6, 8 and 11-13 remain in the application. Support for the amendments to the claims can be found the specification and drawings. No new matter has been added. This application has been carefully considered in connection with the Examiner's Action. Reconsideration, and allowance of the application, as amended, is respectfully requested.

### **Objection to The Drawings**

The sole drawing stands objected to as failing to comply with 37 CFR 1.84(p)(5) because the drawing includes reference character "9" not mentioned in the description. The specification has been amended herein to include the reference character "9" in the paragraph on page 6, lines 16-32. As illustrated in the Figure, reference character 9 indicates a line (e.g., a drive signal line) between the data processing device 10 and the X-ray tube 2. Accordingly, the objection to the drawing has now been overcome. Withdrawal of the objection is respectfully requested.

### **Objection to The Specification**

The specification stands objected to because of reference to claims on page 1, lines 23-25. The specification has been amended to remove references to the claims in the specification on page 1, lines 23-25. Accordingly, the objection to the specification has now been overcome. Withdrawal of the objection is respectfully requested.

### **Objection to The Claims**

Claims 1-10 were objected to because of informalities. Claims 4,5,7,9 and 10 have been canceled, thus the objection thereof is now moot. With respect to claims 1-3, 6 and 8, Applicant respectfully traverses this objection for at least the following reason.

Claims 1-3, 6 and 8 have been amended to remove the informalities as identified in the office action. Accordingly, the objection to claims 1-3, 6 and 8 has now been overcome. Withdrawal of the objection is respectfully requested.

### **Rejection under 35 U.S.C. §102**

Claim 1 recites a device for producing images of an object that is subject to a cyclic spontaneous movement and for controlling an injection rate of a contrast agent in a vascular system of the object, comprising:

- a) an X-ray unit for producing a series of two-dimensional projected pictures of the object;
- b) a measuring device for determining a parameter characteristic of the spontaneous movement of the object;
- c) a data processing device that is coupled to the X-ray unit and the measuring device and that is designed to drive the X-ray unit as a function of a particular value of the spontaneous movement characteristic parameter in such a way that, during a predetermined movement phase to be displayed corresponding to a movement phase of greatest movement, pictures are taken of the object with a higher X-ray exposure rate and/or picture-taking rate than during the other movement phases;
- d) an injection pump for injecting the contrast agent at a controllable injection rate;
- e) a measuring device for determining a parameter characteristic of a flowrate in the vascular system; and
- f) a control unit that is coupled to the injection pump and the flowrate parameter characteristic measuring device, the control unit configured to drive the injection pump as a function of a particular value of the characteristic parameter in such a way that (i) the contrast agent follows a predetermined concentration pattern in the vascular system, (ii) the injection rate of the contrast

agent is matched to instantaneous flow conditions in the vascular system, and (iii) a total amount of contrast agent injected is limited to a necessary minimum, the necessary minimum being defined by the predetermined concentration pattern, the predetermined concentration pattern further being specified to produce a constant contrast display of the vascular system while pictures are being taken of the object during a duration of the contrast agent injection.

Support for the amendments to claim 1 (as well as for claim 8) can be found in the specification at least on page 3, lines 22-34; page 4, lines 1-4; and page 6, lines 9-15.

Claims 1-3, 6 and 8 were rejected under 35 U.S.C. § 102(b) as being anticipated by **Horbascheck** (DE 4210121).

The PTO provides in MPEP § 2131 that

*"[t]o anticipate a claim, the reference must teach every element of the claim...."*

Therefore, with respect to claim 1, to sustain this rejection the **Horbascheck** patent must contain all of the above claimed elements of the respective claims. However, in view of amendments presented herein to claim 1, contrary to the examiner's position that all elements are disclosed in the **Horbascheck** reference, the latter reference does not disclose a device for producing images ... and for controlling an injection rate ... during a ... movement phase to be displayed corresponding to a movement phase of *greatest* movement ... and having "a control unit configured to drive the injection pump ... in such a way that (i) the contrast agent follows a *predetermined concentration pattern* in the vascular system, (ii) the *injection rate* is *matched to instantaneous flow conditions* ..., and (iii) a *total amount* of contrast agent injected is *limited to a necessary minimum*, the necessary minimum being *defined by the predetermined concentration pattern*, the predetermined concentration pattern further being *specified to produce a constant contrast display* of the vascular system while

pictures are being taken of the object during a duration of the contrast agent injection” as is recited in claim 1 (emphasis added). Therefore, the rejection is not supported by the **Horbascheck** reference and should be withdrawn.

Accordingly, claim 1 is allowable and an early formal notice thereof is requested. Dependent claims 2, 3 and 6 depend from and further limit independent claim 1 and therefore are allowable as well.

Independent claim 8 has been amended herein to include limitations similar to those of claim 1. Accordingly, claim 8 is believed allowable for at least the same reasons as presented herein above with respect to overcoming the rejection of claim 1, and an early formal notice thereof is requested.

Claims 4, 5 and 9 were rejected under 35 U.S.C. § 102(b) as being anticipated by **Lienard et al.** (US 2003/0069499). By this amendment, claims 4, 5 and 9 have been canceled, thus rendering the rejection thereof now moot.

#### **Rejection under 35 U.S.C. §103**

Claim 7 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over **Horbascheck** in view of **Lienard et al.** By this amendment, claim 7 has been canceled, thus rendering the rejection thereof now moot.

Claim 10 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over **Lienard et al.** in view of **Horbascheck**. By this amendment, claim 10 has been canceled, thus rendering the rejection thereof now moot.

#### **New Claims**

New claims 11-13 have been added to provide for more complete claim coverage of the embodiments of the present application. Claims 11-13 depend from and further limit allowable independent claim 8 and therefore are believed allowable as well.

## **Conclusion**

Except as indicated herein, the claims were not amended in order to address issues of patentability and Applicants respectfully reserve all rights they may have under the Doctrine of Equivalents. Applicants furthermore reserve their right to reintroduce subject matter deleted herein at a later time during the prosecution of this application or a continuation application.

It is clear from all of the foregoing that independent claims 1 and 8 are in condition for allowance. Dependent claims (2, 3 and 6) and (11-13) depend from and further limit independent claims 1 and 8, respectively, and therefore are allowable as well.

The amendments herein are fully supported by the original specification and drawings; therefore, no new matter is introduced. An early formal notice of allowance of claims 1-3, 6, 8 and 11-13 is requested.

Respectfully submitted,



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